

Serum monocyte fraction of white blood cells is increased in patients with high Gleason score prostate cancer

Supplementary Material

Supplementary Table 1: Characteristics and biopsy findings of all men (comparison of the men with positive biopsy to those with negative biopsy)

Characteristic	NC		LG+HG		p-Value
Number	413		131+422		
Age (years)	67	(44-84)	71	(36-89)	<0.0001
PSA (ng/ml)	6.39	(0.36-935)	10.99	(1.49-10138)	<0.0001
Prostate volume (cm ³)	40.0	(10.0-150.0)	28.1	(7.3-160.0)	<0.0001
PSAD (ng/ml/cm ³)	0.17	(0.01-12.99)	0.40	(0.03-330.87)	<0.0001
WBC count (/μl)	5850	(2390-13870)	5700	(3170-12400)	0.1613
Neutrophil fraction (%)	61.2	(34.2-91.5)	60.1	(27.0-87.3)	0.3666
Lymphocyte fraction (%)	28.8	(4.2-55.8)	28.1	(9.2-65.4)	0.6325
Monocyte fraction (%)	6.7	(2.5-13.2)	7.3	(1.8-17.1)	<0.0001
Basophil fraction (%)	0.6	(0-3.1)	0.5	(0-4.1)	0.5051
Eosinophil fraction (%)	2.5	(0-18.1)	2.3	(0-15.5)	0.5024
CRP (mg/dl)	0.05	(0-8.55)	0.05	(0-16.75)	0.1293
NLR	2.12	(0.61-21.79)	2.12	(0.41-8.39)	0.9448

MLR	0.23	(0.08-1.49)	0.26	(0.04-1.25)	<0.0001
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NC, no cancer; LG, low Gleason score cancer; HG: high Gleason score cancer; PSA, prostate-specific antigen; PSAD, PSA density; WBC, white blood cell; CRP, C-reactive protein; NLR, neutrophil-to-lymphocyte ratio; MLR, monocyte-to-lymphocyte ratio.

Supplementary Table 2: Univariate and multivariate analyses for predicting positive biopsy in all men (n=966)

Variable	Univariate analysis			Multivariate analysis		
	OR	95% CI	p-Value	OR	95% CI	p-Value
Age (years)	1.07	(1.05-1.09)	<0.0001	1.06	(1.03-1.08)	<0.0001
PSA (ng/ml)	1.02	(1.01-1.03)	<0.0001	0.95	(0.94-0.96)	<0.0001
PSAD (ng/ml/cm ³)	17.80	(9.22-36.45)	<0.0001	186.29	(64.23-590.32)	<0.0001
WBC count (/μl)	1.00	(1.00-1.00)	0.161			
Neutrophil (%)	0.99	(0.98-1.01)	0.291			

Lymphocyte (%)	1.00	(0.98-1.01)	0.793			
Monocyte (%)	1.24	(1.16-1.33)	<0.0001	1.17	(1.08-1.27)	0.0001
Basophil (%)	0.93	(0.65-1.32)	0.666			
Eosinophil (%)	0.98	(0.93-1.04)	0.529			
CRP (mg/dl)	1.23	(1.07-1.49)	0.0024	—	—	—
NLR	0.97	(0.88-1.06)	0.510			
MLR	6.02	(2.19-17.59)	0.0004	—	—	—

OR, odds ratio; CI, confidence interval; PSA, prostate-specific antigen; PSAD, PSA density; WBC, white blood cell; CRP, C-reactive protein; NLR, neutrophil-to-lymphocyte ratio; MLR, monocyte-to-lymphocyte ratio.

Supplementary Table 3: Characteristics and biopsy findings of men with PSA <10 ng/ml (comparison of the men with negative biopsy and those with Gleason score ≤ 7 to those with Gleason score ≥ 8)

Characteristic	NC+GS ≤ 7		GS ≥ 8		p-Value
Number	322+186		63		
Age (years)	67	(36-82)	71	(53-87)	0.0002
PSA (ng/ml)	5.80	(0.36-9.99)	6.84	(1.49-9.80)	0.0008
Prostate volume (cm ³)	31.9	(7.3-150.0)	24.0	(7.8-77.0)	<0.0001
PSAD (ng/ml/cm ³)	0.17	(0.01-0.82)	0.28	(0.04-0.70)	<0.0001
WBC count (/ μ l)	5640	(2390-13870)	5150	(3170-10280)	0.0316
Neutrophil fraction (%)	60.9	(27.0-91.5)	57.1	(39.4-78.0)	0.0300
Lymphocyte fraction (%)	28.5	(4.2-65.4)	31.3	(9.2-48.7)	0.3027
Monocyte fraction (%)	6.7	(1.8-13.2)	8.2	(4.9-15.4)	<0.0001
Basophil fraction (%)	0.6	(0-4.1)	0.6	(0.1-1.9)	0.9001
Eosinophil fraction (%)	2.5	(0-15.7)	2.4	(0-14.2)	0.4336
CRP (mg/dl)	0.05	(0-6.51)	0.04	(0-6.41)	0.7140
NLR	2.12	(0.41-21.79)	1.78	(0.89-8.23)	0.1264
MLR	0.23	(0.08-0.97)	0.29	(0.13-1.25)	0.0032

NC, no cancer; GS, Gleason score; PSA, prostate-specific antigen; PSAD, PSA density; WBC, white blood cell; CRP, C-reactive protein; NLR, neutrophil-to-lymphocyte ratio; MLR, monocyte-to-lymphocyte ratio.

Supplementary Table 4: Univariate and multivariate analyses for predicting Gleason score ≥ 8 in men with PSA < 10 ng/ml (n=571)

Variable	Univariate analysis			Multivariate analysis		
	OR	95% CI	p-Value	OR	95% CI	p-Value
Age (years)	1.08	(1.04-1.13)	<0.0001	1.07	(1.03-1.12)	0.0016
PSA (ng/ml)	1.26	(1.10-1.46)	0.0007	—	—	—
PSAD (ng/ml/cm ³)	285.82	(46.01-1947.56)	<0.0001	340.63	(48.90-2557.11)	<0.0001
WBC count (/ μ l)	1.00	(1.00-1.00)	0.0483	—	—	—
Neutrophil (%)	0.97	(0.94-1.00)	0.0355	—	—	—
Lymphocyte (%)	1.01	(0.98-1.04)	0.512			
Monocyte (%)	1.47	(1.30-1.69)	<0.0001	1.45	(1.26-1.67)	<0.0001
Basophil (%)	0.97	(0.45-1.86)	0.942			

Eosinophil (%)	1.04	(0.92-1.15)	0.528			
CRP (mg/dl)	1.22	(0.84-1.64)	0.260			
NLR	0.96	(0.75-1.14)	0.668			
MLR	20.23	(3.76-110.59)	0.0006	—	—	—

OR, odds ratio; CI, confidence interval; PSA, prostate-specific antigen; PSAD, PSA density; WBC, white blood cell; CRP, C-reactive protein; NLR, neutrophil-to-lymphocyte ratio; MLR, monocyte-to-lymphocyte ratio.